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# And the beat goes on. The continued trials and tribulations of passenger rail franchising in Great Britain

John Preston<sup>\*</sup>, Charles Bickel

School of Engineering, Boldrewood, University of Southampton, SO16 7QF, UK

## ARTICLE INFO

### Classification codes:

L51 economics of regulation  
L92 railroads and other surface transportation

### Keywords:

Rail  
Franchising  
Contract  
Incentives

## ABSTRACT

National rail passenger services in Great Britain have been largely delivered by a system of franchising since 1996. As reported at previous Thredbo Conferences, this system has had several iterations and a number of failures, with one franchise (for the East Coast) having failed three times. This paper will use national level and operator specific data provided by the Office of Rail and Road (ORR) to review recent key trends in rail demand and supply. It will extend an existing modelling framework to determine the costs and benefits of rail franchising at the national level. It will also undertake case studies of two franchises, for the East Coast and South West. In advance of the on-going Williams Review, policy prescriptions will be suggested for both the commercial and the social railway with particular reference to contract specifications.

## 1. Introduction

This paper builds on work presented at previous Thredbo conferences and subsequently published in *Research in Transportation Economics* (Preston, 2008, 2017, 2018; Preston & Robins, 2013). It is structured as follows. In section 2, a brief history of rail franchising in Great Britain is provided, and an update on some key trends is given. In section 3, a welfare analysis is updated in an attempt to further assess whether franchising has been beneficial to society as a whole. In section 4, we discuss some issues concerning two case studies. In section 5, we draw some conclusions.

## 2. Context

The reforms that were made to the national railway system in Great Britain are of interest to both academics and practitioners, given their breadth, depth and relative longevity and provide a classic case study of industrial reorganisation documented by, for example, Gourvish (2002, 2008) and Parker, 2012. The reforms were initiated by the 1993 Railways Act which introduced a package of measures. The nationalised railway was vertically and horizontally separated into around 100 different organisations and privatised by a variety of means (Harris & Godward, 1997). Competition for the market was introduced by franchising passenger services, whilst competition in the market was introduced through open access operations for freight and some passenger

services. New public bodies and mechanisms were established to administer and regulate the system, in particular ORR (initially Office of the Rail Regulator). The focus of this paper is on the franchising of passenger services.

The history of rail franchising in Britain and elsewhere has been well recorded both by one of the authors (Preston, 2001, 2008, 2017, 2018) and by others (Cowie, 2009; Jupe, 2010; Knowles, 2004, 2013; Nash & Smith, 2007, 2011; Smith, Nash, & Wheat, 2009). Moreover, these reforms did not occur in isolation but were part of a worldwide movement towards more liberalised rail regimes (see, for example, Alexandersson, 2009; Beria, Quinet, de Rus, & Schulz, 2012; Thompson, 2003) and towards deregulation and privatisation across a range of economic sectors (see, for example, Crew & Parker, 2006; Saal & Parker, 2003).

### 2.1. Franchising

We have argued previously that rail franchising has consisted of five phases to date (Preston, 2017, 2018), as shown by Table 1. The first phase ran from 1996 to around 2000 and was associated with the Office of Passenger Rail Franchising (OPRAF). State owned national passenger rail operations were horizontally separated into 25 Train Operating Companies (TOCs) and franchised to the private sector in a period of a little more than a year in 1996/7. These franchises were typically of seven years duration and heavily proscribed, particularly in terms of minimum service levels. An initial assessment (based on data for

<sup>\*</sup> Corresponding author.

E-mail address: [jpreston@soton.ac.uk](mailto:jpreston@soton.ac.uk) (J. Preston).

<https://doi.org/10.1016/j.retrec.2020.100846>

Received 15 October 2019; Received in revised form 10 April 2020; Accepted 14 April 2020

Available online 18 April 2020

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**Table 1**  
The five phases of rail franchising.

Phase	Dates	Responsible Authority	Achievements	Assessment
1	1996–2000	OPRAF	25 franchises let	Initial success
2	2001–2004	SRA	9 franchises re-let, 1 failure, 13 renegotiated.	Cost over-runs post Hatfield.
3	2005–2012	DfT – Cap and Collar	12 franchises re-let. 2 failures	Revenue short-falls.
4	2012–2013	DfT – SLF	1 cancellation	Shortcomings in evaluation
5	2014–2020	DfT – Horses for courses	11 franchises re-let by mid-2019. 6 more by 2022. 1 failure.	13 Direct awards.

1996/1997 to 1999/2000) indicated that this phase was welfare positive, at least for the central scenario (Pollitt & Smith, 2002, Table 6). This is a finding that is confirmed by our own analysis (see Table 4).

The privatisation of rail in Britain was associated with John Major's Conservative Government. The election of Tony Blair's new Labour Government in 1997 eventually led to a change in emphasis and the second phase of franchising that operated from around 2001 to 2004. New Labour were committed to dealing with the railways as they found them and this meant in practice providing greater direction by replacing OPRAF with the Strategic Rail Authority (SRA). Over this period, nine TOCs were re-franchised, with an emphasis, at least initially, on longer and more open contracts. However, this second phase was quickly overtaken by the events that were triggered by the Hatfield rail accident in October 2000 which resulted in the privatised track authority, Rail-track, being placed into administration and being eventually replaced some two years later by Network Rail, initially a hybrid organisation set up as a company limited by guarantee but classified by the Office for National Statistics as a public body in 2014. Cost increases were incurred for both infrastructure and operations (Smith, 2006) and, largely as a consequence, one franchise failed (Connex South Eastern – serving part of the London commuter market), whilst 13 were renegotiated in one form or another, although it should be noted that these were, in the main, franchises let during phase one.

As a result, Government took greater control of the rail system in the third phase of rail franchising that ran from around 2005 to 2012. The SRA was abolished and its functions largely transferred to the Department for Transport (DfT). Over this period, 12 TOCs were re-franchised, with in most cases a cap and collar risk-sharing scheme implemented to overcome concerns that post-Hatfield bidders would be excessively risk averse. These arrangements, which typically came into operation after four years of a franchise, involved TOCs sharing 50% of any fares revenue above 102% of the bid profile with the DfT (the cap). Conversely, DfT would make-up 50% of any revenue shortfalls between 96% and 98% of the bid profile and 80% of shortfalls below 96% (the collar). The outcome was that these arrangements seemed to encourage strategic behaviour, with bids backloaded in terms of premium payments and reliant on large revenue growth. As the key assessment criteria for a franchise bid was the difference between revenue and costs but the cap and collar incentive was based on revenue, there may have been incentives to overstate both revenue and costs at the bidding stage. There were also concerns that subsidy at the beginning of a franchise was being treated as cheap cash to finance Parent Group activity in other businesses and that, once the collar was invoked, the incentive to grow revenue was muted. The problems were symbolised by the successive failures of the TOC operating long distance services on the East Coast Main Line between London and Edinburgh; GNER (in 2007), National Express East Coast (in 2009) (McCartney & Stittle, 2011; Preston, 2017) and most recently Virgin Trains East Coast (2018).

Given problems with the cap and collar regime, a fourth phase of franchising was introduced in 2012, with the introduction of the

Subordinated Loan Facility (SLF), which is capital provided by the bidder's parent company, used to cover operator losses, protect the DfT against default and to guarantee premium payments. In addition, there was also a performance bond to cover the cost to the DfT of running services and re-letting a franchise if the operator defaults. These measures were designed to discourage the overoptimistic bidding that had characterised the third phases (HC796, 2012), although there was a problem in that the SLF was not known in advance. Moreover, the first application for the West Coast franchise (that provided long distance services on the West Coast Main Line between London and Glasgow) revealed errors in the calculation of the SLF. This led to the subsequent cancellation of the West Coast franchise, the suspension of the overall franchising programme and the instigation of the Laidlaw Enquiry (HC 809, 2012) and the Brown Review (Cm8526, 2013) (see also (Jupe, 2013)).

The fifth phase of franchising commenced in 2014, with the DfT taking what has been described as a 'horses for courses' approach – with the contract specifications customised to take into account the peculiarities of individual franchises (Preston, 2017). As of August 2019, there have been 11 re-franchises<sup>1</sup> let. One further franchise has been at an advanced stage for some time but has proved difficult to let (South Eastern). As a result of difficulties in letting contracts, both in the aftermath of the aborted West Coast franchise and the more recent slowdown in passenger growth, some 13 direct awards have been made. In order of risk increasing with the TOC, this phase has included management contracts (e.g. West Coast from 2012 to 2019), legacy cap and collar arrangements (e.g. Southern up to 2015), new revenue risk sharing arrangement (e.g. Thameslink from 2014), revenue share and support (e.g. Greater Anglia), GDP based mechanisms (e.g. East Coast) and all risks with the TOC (e.g. the relatively self-contained Essex Thameside). A further six awards were expected by 2022 but in the Queen's speech on 14 October 2019, the Government announced its intentions to replace franchising with a new commercial model from 2020 onwards.<sup>2</sup> It thus seems likely that the rail reforms are likely to move in to a sixth phase, although as we will see this has been overtaken by events.

Overall, franchising has seen a lot of changes. The number of TOCs has reduced from 25 to 18, largely in an attempt to reduce the number of operators at London termini. Despite switching costs, re-franchising has involved a lot of turnover, with the incumbent often losing the franchise (including long-standing incumbents such as Stagecoach and the South Western franchise in 2017 and Virgin and the West Coast franchise in 2019). This suggests that incumbency does not have a reputational advantage. As a result, franchising does not seem to be a self-learning system as some knowledge is lost with each franchise handover. It should therefore not be a surprise when history repeats itself and the same mistakes reoccur, as with the East Coast franchises. Another feature has been the growth of the role of foreign ownership. By Spring 2019, 14 of the TOCs had some form of foreign control, including operators from France, Germany, Hong Kong, Italy, Japan and the Netherlands, many of them state owned. Of the 17 bidders with PQQ (Pre-qualification Questionnaire) passports, 12 are under foreign control.<sup>3</sup>

## 2.2. Key trends

The key trends in the passenger rail market in Britain have been well

<sup>1</sup> 2014: Essex Thameside, Thameslink Southern Great Northern, East Coast. 2015: Northern, Transpennine Express, Scotrail. 2016: East Anglia. 2017: South Western, West Midlands. 2019 East Midlands, West Coast.

<sup>2</sup> <https://www.bbc.co.uk/news/uk-politics-50016682> <Accessed 15 October 2019>.

<sup>3</sup> <https://www.gov.uk/government/collections/rail-franchising#rail-franchising-pqq-passport> <Accessed 30 June 2019>.

**Table 2**

Key Trends by Franchise Phase (% change per period. Annual % change in brackets).

Franchise Phase	Dates	Demand (Pass Km)	Real receipts per pass km	Supply (Train Km)	Real Train Operation Costs per Train Km	Real Infra-structure Costs per Train Km	Real support
1	95/96-00/01	+31 (+4.6)	-5 (-0.8)	+21 (+3.2)	+20 (+3.1)	+24 (+3.6)	-38 <sup>a</sup> (-6.6)
2	01/02-04/05	+7 (+1.7)	+4 (+0.9)	+7 (+1.7)	+18 (+4.2)	+30 (+6.8)	+185 (+29.9)
3	05/06-11/12	+34 (+4.3)	+3 (+0.4)	+11 (+1.5)	-4 (-0.6)	-7 (-1.0)	0 (0.0)
4/5	12/13-17/18	+16 (+2.5)	-3 (-0.5)	+2 (+0.3)	-2 (-0.3)	-2 (-0.3)	+3 (+0.5)
TOTAL		+118 (+3.4)	-1 (0.0)	+47 (+1.7)	+33 (+1.3)	+47 (+1.7)	+81 (+2.5)

Note inflation over this period (1996–2018) was around 49% (Source: DfT, 2019). Table based on data in Bickel (2019).

<sup>a</sup> Based on 1994/95. 1995/96 distorted by privatisation receipts.

documented and here are based on the work of Bickel (2019), drawing largely from data from ORR National Rail Trends<sup>4</sup> and the UK Rail Industry Financial Information reports, supplemented by the Rail Industry Monitor for cost data. The results are summarised by Table 2.

Passenger demand has more than doubled since the introduction of franchising, with growth during all phases, but particularly strong growth coinciding with phases 1 and 3. Some of this growth will be due to exogenous factors, notably rising incomes for most of the period (but not around 2008) and rising road journey times. However, even before the COVID-19 crisis (see post-script), there was some evidence that rail demand is now stalling.

Real receipts per passenger km can be considered as a proxy for fares. This shows a broadly stable pattern (with just a 1% decrease over the whole period). The decrease in the first phase of franchising may be due to fares regulation<sup>5</sup> whilst the more recent declines in yields may reflect downtrading. It should though be noted that the change in mean receipts will be affected by the increased prevalence of advanced purchase discounted tickets. As a result, an alternative measure, ORR's fares index shows substantial increases in real terms over this period.

Since the introduction of franchising there has been an almost 50% increase in passenger train kilometres operated on the network, but this increase was focused on the first three phases of franchising. There are indications that in key parts of the network capacity limits have been reached, with an adverse impact on performance given the positive association between capacity utilisation and congestion related reactionary delay (Armstrong & Preston, 2017).

Data on costs are not readily available and it is difficult to separate passenger and freight costs, but it is estimated that train operation costs per train km have increased by 33% in real terms, whilst infrastructure costs per train km have increased by 44%. This results in an increase overall of 40%, with the growth occurring in the first two phases of franchising, with modest reductions since.

If we use 1994/95 as the base year (as 1995/6 is distorted by privatisation receipts), overall Government support to the railways has increased by over 80% in real terms. As this is less than the increase in passenger kilometres (up 128% from 1994/95), there has been a decrease in support (and hence subsidy) per passenger kilometre. There was a decrease in support in the first phase of franchising (as might be expected from experience in other countries and sectors) but a more than doubling of support coincided with the second phase, since when support has been broadly constant. To the extent that privatisation involved the sale and lease back of assets, some subsequent increases in costs (and hence support) might be expected.

Public Performance Measure (PPM) variation with time

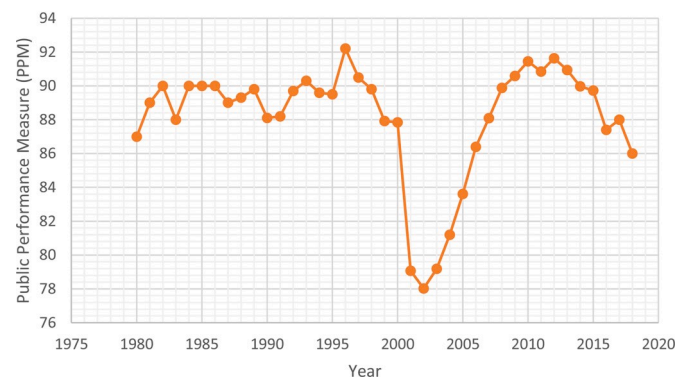


Fig. 1. PPM Variations over Time Source: Bickel, 2019 using data from ORR.

Table 2 summarises the key trends over the different franchise phases. However, there are substantial lags in the franchising process, with many of the first phase franchises still operating in the second phase and so on. Nonetheless, it may be instructive to see if any changes in trends are associated with the franchise phases, although clearly causation cannot be inferred.

There is one further indicator that is worth commenting on. Fig. 1 shows the Public Performance Measure (PPM) which is the percentage of trains that arrive at their final destination on-time (within 5 min for short distance services and 10 for longer distance services). This fluctuated at or below the 90% level prior to privatisation. However, there was a marked deterioration as a consequence of the Hatfield accident in 2000 and a slow recovery up to 2010. Since 2012, the PPM measure has been declining again, exacerbated by industrial disputes and the unsuccessful introduction of new timetables for Northern and Thameslink in May 2018. This in turn has led to declines in customer satisfaction as measured by the National Rail Passenger Survey (see also Fig. 2). This has led to one of the periodic crises of confidence with the passenger railway system and as a result the Department for Transport commissioned the Williams Rail Review in September 2018, with consultation from December 2018 to May 2019, and a Government White Paper scheduled for autumn 2019, but as of April 2020 still had not been published.<sup>6</sup> The recommendations of the review are not yet known but

<sup>4</sup> <http://dataportal.orr.gov.uk/>.<sup>5</sup> Around 50% of all fares are regulated, with increases being limited to RPI between 1996 and 1998, and to RPI-1% between 1999 and 2003. Since 2004, increases of up to RPI+1% have been permitted.<sup>6</sup> See <https://www.gov.uk/government/collections/the-williams-rail-review> <Accessed 29 June 2019>.

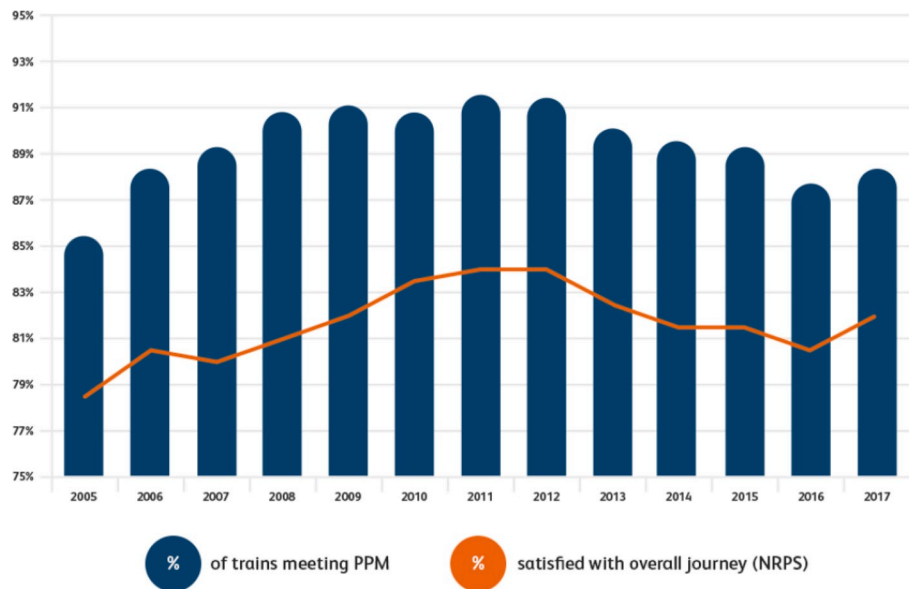


Fig. 2. The relationship between PPM and Customer Satisfaction 2005 -2017  
Source: Network Rail.

Table 3

Descriptive statistics of the key variables.

	PKM (billion)	RPKM (£/km)	TKM (million)	GDP (£ million)	PRIV	HAT	STRIKE
Mean	40.6048	0.13231	405.337	137228	0.35897	0.15385	0.02564
Standard Deviation	11.8700	0.00997	77.441	420587	0.48597	0.36552	0.16013
Range	38.5692	0.03955	235.3	1466513	1	1	1
Minimum	27.2308	0.10830	286.5	785890	0	0	0
Maximum	65.8	0.14785	521.8	2252403	1	1	1

the Chair has stated that franchising cannot continue in its current form<sup>7</sup> and that he will be seeking a new passenger offer, a new industry structure and a new commercial model, along with simplified fares and ticketing.<sup>8</sup>

### 3. Welfare assessment

Our welfare assessment is an update of the analysis in Preston and Robins (2013), Robins (2012) and Syarifuddin (2016) and is detailed in Bickel (2019). This methodology consists of a demand forecasting model to determine the extent to which changes can be associated with the privatisation policy package and to assess changes in consumer surplus and total revenue. Extrapolative five years moving average models are used to determine the counterfactual trends in fares, train kilometres, operating costs and capital costs. A series of demand forecasting models were tested, with the recommended model based on a simple negative exponential or semi-log time series formulation using annual data for the national system as follows:

$$\ln PKM_t = \alpha + \beta RPKM_t + \gamma TKM_t + \delta GDP_t + \theta PRIV + \mu HAT + \rho STRIKE \quad (1)$$

where  $PKM_t$  = Passenger Kilometres in year  $t$  (billion),  $RPKM_t$  = Real Revenue per Passenger Kilometre in year  $t$  (£),  $TKM_t$  = Train Kilometres

Table 4

Forecasting model parameters.

Coefficient	Value	t-statistic
$\alpha$ (Constant)	2.969	23.169
$\beta$ (Price)	-5.376	-4.396
$\gamma$ (Train Km)	0.003	9.370
$\delta$ (GDP)	2.15E-07	3.902
$\theta$ (Privatisation) <sup>a</sup>	-0.078	-5.089
$\mu$ (Hatfield)	-0.057	-3.028
$\rho$ (Strike)	-0.072	-2.083
Adjusted R <sup>2</sup>	0.988	
Durbin-Watson	1.723	

<sup>a</sup> Testing indicated that privatisation ceased having an impact on demand after 2006.

in year  $t$  (million),  $GDP_t$  = Real Gross Domestic Product in year  $t$  (£ million),  $PRIV$  = Privatisation Dummy Variable (1992/3 to 2005/6),  $HAT$  = Hatfield Dummy Variable (2000/1 to 2005/6) and  $STRIKE$  = Strike Dummy Variable (1982/3). Some descriptive statistics of this data set are given by Table 3.

The estimated coefficients of equation (1), using data from 1979/80 to 2017/18 (39 observations), and some diagnostic statistics are given in Table 4. All parameters are statistically significant (at the 5% level), the model explains almost 99% of variation in the data and autocorrelation (as measured by the Durbin-Watson statistic) does not appear to be a significant problem. However, analysis of the collinearity diagnostics indicated that multicollinearity is an issue in that the Variance Inflation Factors for two of the independent variables (TKM and GDP) are greater than 10. However, it was assumed that this pattern of multicollinearity will persist in the future and there were strong grounds, a priori, to

<sup>7</sup> <https://www.gov.uk/government/news/rail-review-chair-says-franchising-cannot-continue-in-its-current-form> <Accessed 29 June 2019>.

<sup>8</sup> <https://www.gov.uk/government/speeches/williams-rail-review-an-update-on-progress> <Accessed 21 August 2019>.



include both of these explanatory variables.

The dummy variables in the model indicate that privatisation suppressed demand between 1992/3 and 2005/6 by around 7.8% ( $1 - \exp \theta$ ) whilst the Hatfield accident suppressed demand between 2000/1 and 2006/6 by a further 5.5% ( $1 - \exp \mu$ ). The strike in 1982/3 (train drivers) was estimated to reduce demand by around 6.9% ( $1 - \exp \rho$ ). A feature of the negative exponential specification is that demand elasticities are directly proportional to the relevant policy variables. At the mean values in the data, the elasticity of demand with respect to RPKM was computed to be  $-0.59$ , with respect to TKM it was calculated to be  $1.21$  and with respect to GDP it was found to be  $0.29$ . These values are broadly consistent with those of some other studies with similar formulations (e.g. Whelan, Harvey, & Cartmel, 2010), although compared to other studies, albeit with different formulations, it appeared that the GDP elasticity is somewhat low and, by inference, the TKM elasticity is rather high (see, for example, Wardman, 2006). This may reflect the multicollinearity discussed above, although it is important to note that in the 14 model formulations tested the parameter values for TKM and GDP were stable (Bickel, 2019).

The counterfactual estimates for fares, train kilometres and infrastructure and train operating costs are based on trend analysis of five year moving averages (after Burton, Carrol, & Wall, 2002). Using the model in Table 4 in conjunction with counterfactual assumptions concerning train km and fares, in combination with actual growth in GDP, suggests that around 42% of the increase in demand would have occurred in any event. Alternative counterfactual scenarios could be constructed. For example, a pro-public ownership scenario might consider a larger GDP elasticity than assumed here and hence ascribe a higher percentage to the demand increase that would have occurred in an any event, regardless of the reforms. A pro-privatisation scenario might have extrapolated the increasing costs and support of the early 1990s as indicating that the commercialisation reforms of the 1980s had been exhausted.

Consumer surplus, the area below the demand curve but above the price level that is the key measure of user benefits, can be estimated directly from equation (1) through integration as follows:

$$CS = \int_{RPKM}^{Max} PKM dRPKM = -\frac{1}{\beta} PKM \quad (2)$$

We then calculate the change in welfare as:

$$\Delta W = \Delta CS + \Delta TR - \Delta TC \quad (3)$$

where  $W$  = Welfare,  $CS$  = Consumer Surplus,  $TR$  = TOC Total Revenue,  $TC$  = TOC Total Costs. All values are expressed in 2017/18 prices and  $\Delta$  refers to the difference between the actual outcome and the counterfactual. Subsidy is treated as a costless transfer and there are assumed to be no material external effects. Further, it is assumed that quality of service is constant, although Fig. 1 indicates that there was a decline in performance in terms of punctuality and reliability (as measured by PPM) between 1999 and 2008 and Fig. 2 indicates that this re-emerged

**Table 5**  
Changes in Welfare by Franchising Phase (PV, £ billion, 2017/18 prices).

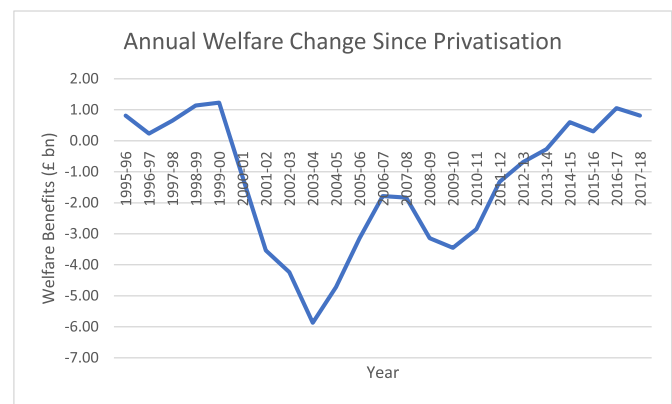
	Overall ( $\Delta W$ )	Change in Infrastructure Costs	Net Effect <sup>a</sup> (Per year in brackets)
1995/6–2000/1	+2.66	+1.42	+4.08 (+0.7)
2001/2–2004/5	−13.66	+12.44	−1.22 (−0.3)
2005/6–2011/12	−10.88	+17.50	+6.62 (+0.9)
2012/13–2017/18	+0.80	+12.88	+13.67 (+2.3)
Total	−21.08	+44.23	+23.15 (+1.0)

<sup>a</sup> If change in infrastructure costs disregarded.

**Table 6**  
Comparison of east coast (EC) and SWT.

	Train Km (million)	Pass Km (million)	Pass Rev (£ million)	Subsidy per Pass Km (pence)	PPM (%)	Satisfaction
EC 2009	20.0	4695.1	577.6	−3.9	86.9	87.0
EC 2015	22.0	5297.7	667.3	−5.0	88.6	94.0
Change	+10.0%	+12.8%	+15.5%	−1.1	+1.7	+7.0
SWT 2009	39.5	5345.7	672.8	−0.8	93.1	85.0
SWT 2015	39.5	6222.0	1008.6	−6.0	90.1	80.0
Change	0	+16.4%	+49.9%	−5.2	−3.0	−5.0

Source: TAS (Rail Industry Monitor) and Transport Focus,



**Fig. 3.** Overall Welfare Effects of Passenger Rail Reforms (2017/18 prices).

as an issue from around 2014.

Present Value (PV) in year  $i$  is then estimated as:

$$PV_i = \frac{\Delta W_i}{(1+r)^i} \quad (4)$$

where  $r$  = UK Government test discount rate (0.035).

The abridged results of this analysis are shown in Table 5. The earlier caveat about ascribing impacts to particular franchise phases still applies. It should also be stressed that our results are sensitive to the assumptions made concerning the counterfactual and the specification of the demand function. We take some assurance from the broad consistency of the results here and the earlier work by Robins (2012) and Syarifuddin (2016).

Table 5 indicates that the passenger railway reforms overall were welfare negative, incurring a loss of £21 billion (present value, 2017/18 prices). However, Fig. 3 show that overall there were small welfare gains in the early years of the reforms, which is consistent with the findings of (Pollitt and Smith, 2002). More recently there have also been welfare gains as demand has continued to increase compared to the counterfactual, and costs have stabilised. In the intervening period there have been large welfare losses, with the nadir being reached in 2003/4.

Includes the impact of increased infrastructure costs. Source: Bickel, 2019, p. 79.

It should be noted that if we assume the counterfactual PPM should be held constant at around 0.9, then using a value of late time of £30 (based on WebTAG and the Passenger Demand Forecasting Handbook

5.1<sup>9</sup>) we estimate an additional welfare loss of approaching £4 billion (in Present Value terms) over the period 1999/2000 to 2006/7. However, it can be argued that this effect is captured by the Hatfield dummy variable that captures the impact of the decline in the PPM on demand (and hence consumer surplus).

Moreover, we have argued previously that the increases in rail infrastructure costs should not be directly ascribed to the rail franchising process as they were related to the way the industry was vertically separated (Preston, 2002, 2018). This would also apply to any increases in delay resulting from Hatfield which we would argue arose from a failure in infrastructure policy and in particular the perverse incentives that arose from paying for maintenance by fixed rates but renewals by variable rates. If we exclude the impact of infrastructure cost increases, then Table 4 suggests that rail franchising is welfare positive, with a net gain of £23 billion or around £1 billion per annum. Most of the phases appear to be welfare enhancing, with the exception of the second phase which was dominated by the aftermath of Hatfield and the resultant plethora of management contracts. The latest phase of franchising appears to be particularly welfare enhancing. An important counterargument is that it is difficult to envisage how franchising could have been introduced within a vertically integrated structure, particularly given the limited management information and the tight political timetable of the mid-1990s (see, for example, Freeman & Shaw, 2000).

However, franchising is not a costless transaction. Evidence to the Transport Select Committee indicated that the costs per bid were as high as £5 million in 2006 and £10 million in 2012. Previous work has indicated that there were 5.4 bids per franchise in the first phase, 4.2 bids in the second phase and 3.8 bids for the third phase (Preston, 2017). Comparable data are not available for the fourth and fifth phases, but the trade press indicate two bids per franchise has become the norm, although there is now a more onerous pre-qualification phase and in some recent competitions there seems to have been only one serious bidder and sometimes, as for South Eastern, not even that. If we assume that the franchisor incurs costs equivalent to one bidder per round, then we estimate these transaction costs as £800 million in phase one, £234 million in phase two, £576 million in phase three and £350 million in phases four and five (up to mid-2019). This gives total costs of £1.96 billion, based on some 58 franchise competitions (including one cancellation). This does not include the costs associated with dealing with the four franchise failures or the 26 renegotiations and direct awards. Moreover, it does not include the set-up (and shut down) costs of OPRAF, SRA and DfT Rail or the various reviews of franchising. For example, the Public Accounts Committee estimated that the West Coast franchise cancellation resulted in costs of over £50 million. These transactions costs are therefore substantial, running into the billions, but it is unlikely that such costs completely cancel out the welfare benefits of franchising.

#### 4. A comparative study of two Train Operating Companies

So far in this paper our analysis has been limited to the national rail system. Such an aggregate analysis can only provide limited insights. In this section, we compare the performance of two of the commercially best performing franchises that are of very similar size in terms passenger miles carried: the East Coast and the South West franchises. However, these franchises are very different in terms of the continuity of management, with the East Coast franchise having five changeovers and South West only one, with the East Coast being effectively in public ownership and control from 2009 to 2015 and again from 2018 onwards. The South West franchise also has more commuter services and hence a much greater number of passengers. System maps of the two franchises are given in Appendix 1.

The East Coast franchise has been much studied, not least by the Transport Select Committee (HC, 2018). Table 6 indicates that both TOCs underwent similar trends in terms of passenger kms travelled over the first period that the East Coast franchise was nationalised. However, there were marked differences in trends in terms of subsidy per passenger km (or, given these are negative, premium payments per passenger km). Over the period 2009–15, the premium paid by East Coast fluctuated around four pence per passenger kilometre, whilst for South West Trains (SWT) this increased from one pence to six pence per passenger kilometre. For East Coast, mean train loads and receipts per passenger km were also broadly constant over this period, whilst for SWT they were both increasing. This suggests that over this period SWT was more commercially minded than East Coast. Additional analysis of PPM and Cancelled and Significantly Late trains (CaSLs) showed that although SWT generally had better performance than East Coast, the gap narrowed between 2009 and 2015, despite the experiment with virtual integration by SWT between 2012 and 2015 (Alsaedi & Preston, 2019). It was also found that the complaints per 100,000 passenger journeys decreased over the period for East Coast (albeit from relatively high levels), whilst they increased for SWT. Further, SWT seemed to have a much greater failure rate in meeting the 20 working days response target (Bickel, 2019). This was also reflected by customer satisfaction as recorded in the National Rail Passenger Survey.<sup>10</sup> For East Coast, satisfaction increased between spring 2011 and spring 2015 from 87% to 94%. Over the same period, customer satisfaction decreased for SWT from 85% to 80%. This suggests that the East Coast franchise may have had a greater social focus over this period. Overall, it is evident that Cowie's notion of consumer sovereignty appears more applicable to East Coast than SWT during this period (Cowie, 2014).

#### 5. Conclusions

It is somewhat ironic that when our model indicates that franchising is leading to the largest welfare gains in the 20 plus years of its existence, the regime seems to be in a crisis that may well be terminal. The Department for Transport seems to have had difficulties in obtaining compliant bids for the South East and West Coast franchises, although the latter was awarded to First and TrenItalia in August 2019,<sup>11</sup> after a delay of some seven years. Furthermore, several franchises appear in financial difficulties. As of late-2019, three franchises (Caledonian Sleeper, Transpennine Express and South Western Railway) were drawing on Onerous Contract Provisions (OCP) to the tune of around £300 million. Arriva and Stagecoach have been disqualified from recent competitions, partly related to disputes over pension contributions, whilst some other mechanisms are being disputed. In particular, the Central London Employment adjustment has come under scrutiny as the relationship between Central London based jobs and rail commuting has changed given the greater prevalence of part-time home working and the resultant reductions in season ticket sales (Blainey & Alwosheel, 2018).

This highlights the limitations of our model. It is a national level assessment of net social benefit, that is not able to assess the financial sustainability of individual TOCs. In other words, it is not able to identify what Roger Ford of the trade journal *Modern Railways* has referred to as zombie franchises that are making losses for their parent companies, even though these subsidies may be welfare enhancing. Furthermore,

<sup>10</sup> <https://www.transportfocus.org.uk/research-publications/publications/national-rail-passenger-survey-nrps-at-a-glance-guides-by-train-company-autumn-2015/> <Accessed 29 June 2019>.

<sup>11</sup> <https://www.gov.uk/government/news/west-coast-marks-new-partnership-model-for-rail> <Accessed 21 August>. The contract includes a Forecast Revenue Mechanism (FRM) that will be reviewed annually. The Partnership will be flexible and has been designed to be the shadow operators of HS2, the proposed high-speed service between London and Birmingham.

<sup>9</sup> See <https://www.gov.uk/government/publications/webtag-tag-unit-a5-3-rail-appraisal-may-2018> <Accessed 8 April 2020>.

our model is not comprehensive. In particular, we do not directly incorporate the recent welfare losses incurred as a result of decreases in punctuality and reliability, although those occurring as a result of Hatfield are at least partially taken into account.

Our model is not capable of predicting the outcome of the Williams Review. In this sense, it is reactive rather than proactive. However, we have long argued that franchising should distinguish between the more commercial and more social franchises. For the latter, there seems little option but franchising or possibly a concession on a not for dividend basis, as proposed by some for Wales and Northern and it seems likely that Williams will recommend more devolution/decentralisation of rail powers. If a franchising model is adopted, further tweaks might be made in terms of stress testing and risk sharing. For longer distance, commercial services, there may be an argument for these to be taken into national ownership, at least as a temporary measure as investments in electrification, new rolling stock and high-speed services are implemented. This might also involve some unbundling of the longer distance services from the South Eastern, South Western and Southern, Great Northern and Thameslink services. This could then permit an expansion of London Overground services south of the Thames to operate shorter distance commuter services. The experience of East Coast under Directly Operated Railways (2009–2015) indicates that there could be improvements in some aspects of operational performance as a result of nationalisation, but this could be at the expense of a dilution of commercial focus, although this may not be a bad thing if there is reduced gaming of Schedule 8 payments for delays.

However, it is unlikely that this will be the basis of the Williams Review recommendations for commercial services. More likely is a greater emphasis on joint working between Network Rail and TOCs, despite the lack of any evidence that the Wessex virtual integration led to improvements in performance. A greater emphasis might also be placed on strategic planning, commercial incentives and on open access competition, whilst there will be a review of fares and ticketing arrangements. Provisions with respect to flexible risk sharing and stress testing might be tightened, based on the recently let West Coast Partnership franchise, and there is a possibility of performance based negotiated contracts (Hensher & Stanley, 2008). It seems that, given the likely outcome of the Williams Review, the music might finally stop as far as rail franchising is concerned or, at the very least, continue to a

different beat.

Overall, we have found that a complex set of reforms have had complex repercussions. However, we have evaluated these impacts using relatively simple methods and a useful avenue of future research might be to assess more advanced econometric techniques and to examine a range of counterfactual scenarios using techniques such as Monte Carlo Simulation.

### 5.1. Post-script

Franchising of rail services has continued to be problematic. On 9 February 2020, West Midlands Train (operated by a consortium of Abellio (from the Netherlands), JR East and Mitsui (both from Japan)) was ordered to invest an additional £20 million to overcome performance problems.<sup>12</sup> On 1 March 2020, the Government Operator of Last Resort took over control of the Northern franchise from Arriva, a subsidiary of Deutsche Bahn.<sup>13</sup> This represented a fifth major franchise failure. Then on 23 March 2020, as a result of the COVID-19 pandemic which had seen demand fall by 70% (and subsequently by 90%), the Government used emergency measures to suspend all franchise agreements for an initial period of six months. They would be replaced by management contracts with a fee of up to 2% of the pre-COVID-19 cost base.<sup>14</sup>

The music has finally stopped but not in a way that anyone could have anticipated, although this does seem apposite given the many unexpected outcomes rail franchising has thrown-up, not least the finding that in recent years it has been socially justifiable but has not been commercially viable. In some ways, this is a repeat of the use of the emergency powers used in both the First and Second World Wars, which led in both cases to major structural changes to the industry (the Groupings of 1923 and Nationalisation in 1947). It will be interesting to see if history repeats itself.

### Acknowledgements

The authors are grateful for the comments received from participants of Workshop 1 of the Thredbo 16 Conference, as well as from two anonymous referees. The usual caveat applies.

<sup>12</sup> <https://www.gov.uk/government/news/west-midlands-trains-must-invest-20-million-after-poor-performance-and-delays> <Accessed 6 April 2020>.

<sup>13</sup> <https://www.gov.uk/government/news/northern-franchise-enters-new-future> <Accessed 6 April 2020>.

<sup>14</sup> <https://www.gov.uk/government/speeches/rail-emergency-measures-during-the-covid-19-pandemic> <Accessed 6 April 2020>.



## Appendix 1. Network Maps of the East Coast and South West Franchises



Fact sheets for all Train Operating Companies are available from: <https://dataportal.orr.gov.uk/statistics/compendia/toc-key-statistics/>  
<Accessed 8 April 2020>

## References

- Alexandersson, G. (2009). Rail privatization and competitive tendering in Europe. *Built Environment*, 35(1), 43–58.
- Armstrong, J., & Preston, J. (2017). Capacity utilisation and performance at railway stations. *Journal of Rail Transport Planning & Management*, 7(3), 187–205.
- Beria, P., Quinet, E., de Rus, G., & Schulz, C. (2012). A comparison of rail liberalisation levels across four European countries. *Research in Transportation Economics*, 36(1), 110–120.
- Bickel, C. (2019). *Rail franchising. Is the end nigh? MEng individual project*. School of Engineering, University of Southampton.
- Blainey, S., & Alwosheel, A. (2018). Changing working patterns and the journey to work in the UK. *RGS-IBG Annual International Conference*, (Session 132: Changing Landscapes of Work and Travel), 30th August.
- Burton, G., Carrol, G., & Wall, S. (2002). *Quantitative methods for business and economics* (2nd ed.). Harlow: Pearson Education Ltd.
- Cm 8526. (2013). *Brown review of the rail franchising programme* (January).
- Cowie, J. (2009). The British passenger rail privatisation: Conclusions on subsidy and efficiency from the first round of franchises. *Journal of Transport Economics and Policy*, 43(1), 85–104.
- Cowie, J. (2014). Performance, profit and consumer sovereignty in the English deregulated bus market. *Research in Transportation Economics*, 48, 255–262.
- Crew, M., & Parker, D. (2006). *International Handbook on economic regulation*. Cheltenham: Edward Elgar.
- DfT. (2019). *WebTAG data book*. London: Department for Transport) Accessed 7 April 2020 <https://www.gov.uk/government/publications/tag-data-book>.
- Freeman, R., & Shaw, J. (2000). *All change. British railway privatisation*. Maidenhead: McGraw Hill.
- Gourvish, T. (2002). *British rail 1974-97: From integration to privatisation*. Oxford: Oxford University Press.
- Gourvish, T. (2008). *Britain's railways 1997-2005 labour's strategic experiment*. Oxford: Oxford University Press.
- Harris, N., & Godward, E. (1997). *The privatisation of British rail*. London: Railway Consultancy Press.
- HC 809. (2012). *Report of the Laidlaw inquiry. Inquiry into the lessons learned for the department for Transport from the InterCity West Coast competition*. London: House of Commons (December).
- HC796. (2012). *Lessons from cancelling the InterCity West Coast franchise competition*. London: National Audit Office) (December).
- HC891. (2018). *Intercity East Coast rail franchise*. London: House of Commons Transport Committee (September).
- Hensher, D. A., & Stanley, J. (2008). Transacting under a performance-based contract: The role of negotiation and competitive tendering. *Transportation Research Part A: Policy and Practice*, 42(9), 1143–1151.
- Jupe, R. (2010). A model or a policy muddle? An evaluation of rail franchising in the UK. *Public Money & Management*, 30(6), 347–354.
- Jupe, R. (2013). New Development: Going off the rails? Rail franchising after the cancellation of the West Coast franchise competition. *Public Money and Management*, 33(5), 337–341.
- Knowles, R. (2004). Impacts of privatising Britain's passenger services – franchising, re-franchising, and Ten Year Transport Plan targets. *Environment and Planning A*, 36, 2065–2087.
- Knowles, R. (2013). Railway franchising in Great Britain and the effects of the 2008-2009 economic recession. *Environment and Planning A*, 45(1), 197–216.
- McCartney, S., & Stittle, J. (2011). 'Carry on up the east coast' – a case study in railway franchising. *Public Money & Management*, 31(2), 123–130.
- Nash, C., & Smith, A. (2007). Passenger rail franchising – British experience. In *Paper presented at Thredbo 10 conference (12-17 August 2007, Sydney), workshop C* (pp. 1–27).
- Nash, C., & Smith, A. (2011). Britain. In J. Drew, & J. Ludewig (Eds.), *Reforming railways – learning from experience* (pp. 89–101). Hamburg: Eurail Press.
- Parker, D. (2012). *The official history of privatisation. Volume II popular capitalism 1987-1997. Chapters 16 and 17*. Abingdon: Routledge.
- Pollitt, M., & Smith, A. (2002). The restructuring and privatisation of British rail: Was it really that bad? *Fiscal Studies*, 23(4), 463–502.
- Preston, J. (2001). Franchising and Re-franchising of passenger rail services in Britain. *Transportation Research Record*, 1742, 1–9.
- Preston, J. (2002). The transaction cost economics of railways. *Trasporti Europei*, 20/21, 6–15.
- Preston, J. (2008). A review of passenger rail franchising in Britain: 1996/7 – 2006/7. *Research in Transportation Economics*, 22, 71–77.
- Preston, J. (2017). Deja vu all over again? Rail franchising in Britain. *Research in Transportation Economics*, 59, 107–115.

- Preston, J. (2018). The wheels keep on turning: Is the end of rail franchising in Britain in sight? *Research in Transportation Economics*, 69, 187–196.
- Preston, J., & Robins, D. (2013). Evaluating the long term impacts of Transport policy: An assessment of rail privatisation. *Research in Transportation Economics*, 39, 134–144.
- Robins, D. (2012). *Evaluating the long term impacts of Transport policy: The case of passenger rail privatisation in Great Britain*. PhD Thesis. School of Geography, Faculty of Social and Human Sciences, University of Southampton.
- Saal, D., & Parker, D. (2003). *International Handbook on privatization*. Cheltenham: Edward Elgar.
- Smith, A. (2006). Are Britain's railways costing too much? Perspectives based on TFP comparisons with British rail 1963–2002. *Journal of Transport Economics and Policy*, 40(1), 1–44.
- Smith, A., Nash, C., & Wheat, P. (2009). Passenger rail franchising in Britain: Has it been a success? *International Journal of Transport Economics*, 36(1), 33–62.
- Syarifuddin, S. (2016). *Overall assessment of rail privatisation*. MSc Dissertation. Faculty of Engineering and the Environment. University of Southampton.
- Thompson, L. (2003). Changing railway structure and ownership: Is anything working? *Transport Reviews*, 23(3), 311–355.
- Wardman, M. R. (2006). Demand for rail travel and the effects of external factors. *Transportation Research Part E: Logistics and Transportation Review*, 42(3), 129–148.
- Whelan, G., Harvey, A., & Cartmel, J. (2010). *A time series analysis of rail demand in Great Britain*. European Transport Conference.
- Alsaedi, S. and Preston, J. (2019) *An Assessment of Virtual Integration for Passenger Rail*. 8th International Conference on Railway Operations Modelling and Analysis. Norrköping, Sweden, 17 – 20 June.